**First Quarter – 7th Grade**

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| **Strand** | **Concept** | **PO** | **Item Description** | **Glencoe** | **Vocabulary** |
| **1** | 1. **Number Sense** - Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems. | 1 | Recognize and convert between expressions for positive and negative rational numbers, including fractions, decimals, percents, and ratios. | 4.5 | repeating decimal |
| termination decimal |
| bar notation |
| 4.6 | percent |
| rational |
| 4.7 |  |
| 2 | Find or use factors, multiples, or prime factorization within a set of numbers. | 4.1 | composite number |
| factor tree |
| prime factorization |
| prime number |
| 4.2 | GCF |
| Venn diagram |
| 4.4 | equivalent fractions |
| simplest form |
| 4.8 | LCM |
| multiple |
| Page 734 |  |
| 3 | Compare and order rational numbers using various models and representations. | 2.2 |  |
| 4.9 | common denominator |
| LCD |
| ration number |
| 4 | Model and solve simple problems involving absolute value. | 2.1 | absolute value |
| graph |
| integer |
| negative integer |
| positive integer |
| **2. Numerical Operations -** Understand and apply numerical operations and their relationship to one another. | 1 | Add, subtract, multiply, and divide integers. | 2.4 | additive inverse |
| opposites |
| 2.5 |  |
| 2.6 |  |
| 2.8 |  |
| 2 | Solve problems with rational numbers and appropriate operations using exact answers or estimates. | Supplement - add negative values |  |
| 4 | Represent and interpret numbers using scientific notation (positive exponents only). | LA03 |  |
| 5 | Simplify numerical expressions using the order of operations and appropriate mathematical properties. | 1.2 | base |
| evaluate |
| exponent |
| factors |
| powers |
| 1.3 | perfect square |
| radical sign |
| square |
| square root |
| 1.4 | numerical express |
| order of operations |
| 1.6 | algebra |
| algebraic expression |
| coefficient |
| variable |
| 1.8 | equivalent expressions |
| **3. Estimation -** Use estimation strategies reasonably and fluently while integrating content from each of the other strands. | 1 | Estimate and apply benchmarks for rational numbers and common irrational numbers. | 4.9 |  |
| 3 | \*Estimate square roots of numbers less than 1000 by locating them between two consecutive whole numbers.\* | 1.3 |  |
| **3** | **1. Patterns -** Identify patterns and apply pattern recognition to reason mathematically while integrating content from each of the other strands. | 1 | Recognize, describe, create, and analyze numerical and geometric sequences using tables or graphs; make conjectures about these sequences. | 1.9 | arithmetic sequence |
| sequence |
| term |
| 2.7 |  |
| **2. Functions and Relationships -** Describe and model functions and their relationships. | 1 | Use a table of values to graph an equation or proportional relationship; describe the graph’s characteristics. | 1.99 | function |
| function rule |
| range |
| 2.3 | coordinate plane |
| ordered pair |
| origin |
| quadrant |
| x-axis |
| y -axis |
| x coordinate |
| y coordinate |
| 3.7 | linear equation |
| **3. Algebraic Representations -** Represent and analyze mathematical situations and structures using algebraic representations. | 1 | Write a single variable algebraic expression or one-step equation given a contextual situation. | 1.6 |  |
| 1.7 | equation |
| solution |
| 3.1 |  |
| 3.2 |  |
| 3.3 | formula |
| 2 | Evaluate an expression containing one or two variables by substituting numbers for the variables. | 1.6 |  |
| 3 | Solve multi-step equations using inverse properties with rational numbers. | 3.5 | 2 step equation |
| LA06 |  |
| LA07 |  |
| LA08 |  |
| LA09 |  |
| 4 | \*Translate between graphs and tables that represent a linear equation.\* | 3.7 |  |
| 5 | \*Create and solve two-step equations that can be solved using inverse operations with rational numbers.\* | 3.5 |  |
| LA06 |  |
| LA07 |  |
| LA08 |  |
| LA09 |  |
| 6 | Create and solve one-step inequalities with whole numbers. | Page 740 |  |
| Course 3 Chapter 1.3 |  |
| Course 3 Chapter 8.6 |  |
| Course 3 Chapter 8.7 |  |
| **4** | **4. Measurement -** Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements. | 2 | Identify polygons having the same perimeter or area. | 3.6 |  |
| **5** | **2. Logic, Reasoning, Problem Solving, and Proof -** Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications. | 1 | \*Analyze a problem situation to determine the question(s) to be answered.\* | 1.1 |  |
| 7 | \*Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning.\* | 4.2 |  |

**LA: Looking Ahead (in the back of the text)**

**PSI: Problem Solving Investigation**

**MathScape: supplemental books provided with the adoption**

**Hot Topics: small hard bound book, each classroom has one**

**Second Quarter – 7th Grade**

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| **Strand** | **Concept** | **P.O.** | **Item Description** | **Glencoe** | **Vocabulary** |
| **1** | 1. **Number Sense** - Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems. | 1 | Recognize and convert between expressions for positive and negative rational numbers, including fractions, decimals, percents, and ratios. | 6.1 | equivalent rations |
| ratio |
| 6.9 |  |
| **2. Numerical Operations -** Understand and apply numerical operations and their relationship to one another. | 2 | Solve problems with rational numbers and appropriate operations using exact answers or estimates. | 5.1 | compatible numbers |
| 5.2 | like fractions |
| unlike fractions |
|  |
| 5.3 |  |
| 5.5 |  |
| 5.7 |  |
| 3 | Solve problems involving percentages, ratio and proportion, including tax, discount, tips, and part/whole relationships. | 6.1 |  |
| 6.2 | rate |
| unit rate |
| 6.6 | cross products |
| inverse proportion |
| proportion |
| proportional |
| 7.1 |  |
| 7.2 | percent proportion |
| 7.4 | percent equation |
| 7.6 | percent of change |
| percent of decrease |
| percent of increase |
| 7.7 | discount |
| sales tax |
| summary |
| **3. Estimation -** Use estimation strategies reasonably and fluently while integrating content from each of the other strands. | 2 | Make estimates appropriate to a given situation. | 5.1 |  |
| 7.3 |  |
| 4 | Estimate the measure of an object in one system of units given the measure of that object in another system and the approximate conversion factor. | 6.4 | unit ratio |
| 6.5 |  |
| **3** | **3. Algebraic Representations -** Represent and analyze mathematical situations and structures using algebraic representations. | 1 | Write a single variable algebraic expression or one-step equation given a contextual situation. | 5.6 | multiplicative inverse |
| reciprocal |
| **4. Analysis of Change -** Translate between graphs and tables that represent a linear equation. | 1 | Use graphs and tables to model and analyze change. | 6.3 | rate of change |
| **4** | **4. Measurement -** Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements. | 4 | Determine actual lengths based on scale drawings or maps. | 6.8 | scale |
| scale drawing |
| scale factor |
| scale model |
| **5** | **2. Logic, Reasoning, Problem Solving, and Proof -** Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications. | 4 | \*Represent a problem situation using multiple representations, describe the process used to solve the problem, and verify the reasonableness of the solution.\* | 7.4 |  |

**Third Quarter – 7th Grade**

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| **Strand** | **Concept** | **PO** | **Item Description** | **Glencoe** | **Vocabulary** |
| 1 | **2. Numerical Operations -** Understand and apply numerical operations and their relationship to one another. | 2 | Solve problems with rational numbers and appropriate operations using exact answers or estimates. | 10.7 | indirect measurement |
| similar figures |
| **3. Estimation -** Use estimation strategies reasonably and fluently while integrating content from each of the other strands. | 1 | Estimate and apply benchmarks for rational numbers and common irrational numbers. | 12.1 | irrational number |
| 2 | Make estimates appropriate to a given situation. | 12.1 |  |
| 3 | \*Estimate square roots of numbers less than 1000 by locating them between two consecutive whole numbers.\* | 12.1 |  |
| 2 | **1. Data Analysis (Statistics) -** Understand and apply data collection, organization, and representation to analyze and sort data. | 1 | Solve problems by selecting, constructing, and interpreting displays of data including multi-line graphs and scatter plots. | 10.3 | circle graph |
| 4 | **1. Geometric Properties -** Analyze the attributes and properties of 2- and 3- dimensional figures and develop mathematical arguments about their relationships. | 1 | Recognize the relationship between central angles and intercepted arcs; identify arcs and chords of a circle. | Course 3 7.1 GeoLab |  |
| Mathscape Pages 294-295 |  |
| 2 | Analyze and determine relationships between angles created by parallel lines cut by a transversal. | 10.1 | acute angle |
|  | angle |
| congruent angles |
| degrees |
| obtuse angle |
| right angle |
| straight angle |
| vertex |
| 10.2 | supplementary angles |
| complimentary angles |
| LA10 |  |
| LA11 |  |
| LA12 |  |
| LA13 |  |
| 3 | Draw and classify 3-dimensional figures with appropriate labels showing specified attributes of parallelism, congruence, perpendicularity, and symmetry. | 11.7 | cone |
|  | cylinder |
| edge |
| face |
| lateral face |
| prism |
| pyramid |
| 3 dimensional figure |
| sphere |
| vertex |
| 4 | Describe the relationship between the number of sides in a regular polygon and the sum of its interior angles. | 10.8 | hexagon |
| octagon |
| pentagon |
| polygon |
| regular polygon |
| tessellation |
| not regular (irregular) |
| Course 3 6.3 |  |
| 5 | Identify corresponding parts of congruent figures. | Course 3 6.4 |  |
| LA14 |  |
| LA15 |  |
| LA16 |  |
| LA17 |  |
| **2. Transformation of Shapes -** Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations. | 1 | Model the result of a double transformation (translations or reflections) of a 2-dimensional figure on a coordinate plane using all four quadrants. | 10.9 | transformation |
| translation |
| 10.99 | line of symmetry |
| line symmetry |
| reflection |
| Supplement materials needed |  |
| **4. Measurement -** Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements. | 1 | Solve problems involving the circumference and area of a circle by calculating and estimating. | 11.3 | center |
| circle graph |
| circumference |
| diameter |
| pi( symbol) |
| radius |
| 11.4 | sector |
| Mathscape Pages 294-295 |  |
| Mathscape Pages 298-299 |  |
| 2 | Identify polygons having the same perimeter or area. | 11.6 | semi circle |
| composite figure |
| 11.1 (triangles and parallelograms) | base |
| height |
| 11.2 (triangles and parallelograms) |  |
| 3 | Calculate the area and perimeter of composite 2-dimensional figures. | 10.4 | triangle |
| 11.6 |  |
| 5 | Create a net to calculate the surface area of a given solid. | 11.6 Extend P(600-601) |  |
| 12.4 | surface area |
| 12.5 |  |
| 6 | Identify the appropriate unit of measure to compute the volume of an object and justify reasoning. | 11.9 | rectangular prism |
| triangular prism |
| volume (capacity) |
| 11.99 |  |
| 7 |  | Supplement |  |
| 5 | **1. Algorithms and Algorithmic Thinking -** Use reasoning to solve mathematical problems. | 1 | \*Create an algorithm to determine the area of a given composite figure.\* | 11.6 |  |
| **2. Logic, Reasoning, Problem Solving, and Proof** - Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications. | 7 | \*Isolate and organize mathematical information taken from symbols, diagrams, and graphs to make inferences, draw conclusions, and justify reasoning.\* | 10.6 Explore | parallelogram |
| quadrilateral |
| rhombus |
| trapezoid |
| 9 | Solve logic problems using multiple variables and multiple conditional statements using words, pictures, and charts. | 10.5 P.S.I. |  |
| 10 | \*Demonstrate and explain that the process of solving equations is a deductive proof.\* | 10.5 P.S.I. |  |
| 11 | \*Use manipulatives and other modeling techniques to defend π (pi) as a ratio of circumference to diameter.\* | 11.3 Explore |  |

**Fourth Quarter – 7th Grade**

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| **Strand** | **Concept** | **P.O.** | **Item Description** | **Glencoe** | **Vocabulary** |
| 2 | **1. Data Analysis (Statistics) -** Understand and apply data collection, organization, and representation to analyze and sort data. | 1 | Solve problems by selecting, constructing, and interpreting displays of data including multi-line graphs and scatter plots. | 8.1 | analyze |
| cluster |
| data |
| line plot |
| outlier |
| range |
| statistics |
| 8.6 | line graph |
| scatter plot |
| 8.7 |  |
| 8.3 | leaf |
| stem |
| stem and leaf plot |
| 8.4 | bar graph |
| histogram |
| 2 | Interpret trends in a data set, estimate values for missing data, and predict values for points beyond the range of the data set. | 8.7 | convenience sample |
| random sample |
| voluntarily response sample |
|  |
| 8.6 |  |
| 3 | Identify outliers and determine their effect on mean, median, mode, and range. | 8.2 | mean |
| measures of central |
| median |
| mode |
| 4 | Distinguish between a simple random and non-random sample. | 8.8 | complimentary events |
| outcome |
| probability |
| random |
| simple event |
| **2. Probability -** Understand and apply the basic concepts of probability. | 1 | Determine conditional probabilities (experimental) in compound probability experiments. | 9.8 |  |
| 9.1 |  |
| 9.7 |  |
| 2 | Experiment with two different events to determine whether the two events are dependent or independent of each other. | 9.8 |  |
| 3 | Compare the results of multiple repetitions of the same probability experiment to the theoretical probability. | 9.1 | sample space |
|  | tree diagram |
| 9.7 |  |
| 4 | Compare probabilities to determine fairness in experimental situations. | 9.2 |  |
| Supplement sample space |  |
| **3. Systematic Listing and Counting -** Understand and demonstrate the systematic listing and counting of possible outcomes. | 1 | Analyze relationships among the tree diagrams where items repeat and do not repeat; make numerical connections to the multiplication principle of counting. | 9.2 | fundamental counting principle |
| 9.3 | permutation |
| 9.4 |  |
| 2 | Solve counting problems using Venn diagrams and represent the answer algebraically. | Supplement |  |
| **4. Vertex-Edge Graphs** - Understand and apply vertex-edge graphs. | 1 | Use vertex-edge graphs and algorithmic thinking to represent and find solutions to practical problems related to Euler/Hamilton paths and circuits. | Supplement |  |
| 5 | **2. Logic, Reasoning, Problem Solving, and Proof -** Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications. | 2 | Analyze and compare mathematical strategies for efficient problem solving; select and use one or more strategies to solve a problem. | P.S.I. |  |
| 3 | Identify relevant, missing, and extraneous information related to the solution to a problem. | P.S.I. |  |
| 4 | Represent a problem situation using multiple representations, describe the process used to solve the problem, and verify the reasonableness of the solution. | P.S.I. |  |
| 5 | Apply a previously used problem-solving strategy in a new context. | P.S.I. |  |
| 6 | Communicate the answer(s) to the question(s) in a problem using appropriate representations, including symbols and informal and formal mathematical language. | Hot Topics Text |  |
| 8 | Make and test conjectures based on information collected from explorations and experiments. | 9.6 P.S.I. | experimental probability |
|  | theoretical probability |
| 9.7 Extend | compound event |
|  | dependent events |
|  | disjoint events |
|  | independent events |
| 9.6 |  |
| 9.7 |  |